

## SEQUENCE LISTING

<110> Adler, David A.  
 Holloway, James L.  
 Baindur, Nand  
 Beigel-Orme, Stephanie  
 Sheppard, Paul O.

<120> NOVEL BETA-DEFENSINS

<130> 97-44C1

<150> 60/058.335

<151> 1997-10-09

<150> 60/064.294

<151> 1997-11-05

<150> 09/150.786

<151> 1998-09-10

<160> 72

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 219

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(195)

<400> 1

atg	agg	atc	cat	tat	ctt	ctg	ttt	gct	ttg	ctc	ttc	ctg	ttt	ttg	gtg	48
Met	Arg	Ile	His	Tyr	Leu	Leu	Phe	Ala	Leu	Leu	Phe	Leu	Phe	Leu	Val	
1			5					10						15		

cct	gtt	cca	ggt	cat	gga	gga	atc	ata	aac	aca	tta	cag	aaa	tat	tat	96
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

Pro Val Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
 20 25 30

tgc aga gtc aga ggc ggc cgg tgt gct gtg ctc agc tgc ctt cca aag 144  
 Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
 35 40 45

gag gaa cag atc ggc aag tgc tcg acg cgt ggc cga aaa tgc tgc cga 192  
 Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
 50 55 60

aga aagaaataaa aaccctgaaa catg 219  
 Arg  
 65

<210> 2  
 <211> 65  
 <212> PRT  
 <213> Homo sapiens

<400> 2

Met Arg Ile His Tyr Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val  
 1 5 10 15  
 Pro Val Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
 20 25 30  
 Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
 35 40 45  
 Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
 50 55 60  
 Arg  
 65

<210> 3  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Cysteine motif of the Beta-defensin family

<221> VARIANT

<222> (2)...(7)

<223> Xaa2 is independently any amino acid residue.

144 192 219 65 65 31

preferably not cysteine.

Xaa3 is independently any amino acid residue,  
preferably not cysteine.

Xaa4 is independently any amino acid residue,  
preferably not cysteine.

Xaa5 is independently any amino acid residue,  
preferably not cysteine.

Xaa6 is independently any amino acid residue,  
preferably not cysteine.

Xaa7 is independently any amino acid residue,  
preferably not cysteine.

<221> VARIANT

<222> (9)...(12)

<223> Xaa9 is independently any amino acid residue,  
preferably not cysteine.

Xaa10 is independently any amino acid residue,  
preferably not cysteine.

Xaa11 is independently any amino acid residue,  
preferably not cysteine.

Xaa12 is independently any amino acid residue,  
preferably not cysteine.

<221> VARIANT

<222> (14)...(20)

<223> Xaa14 is independently any amino acid residue,  
preferably not cysteine.

Xaa15 is independently any amino acid residue,  
preferably not cysteine.

Xaa16 is independently any amino acid residue,  
preferably not cysteine.

Xaa17 is independently any amino acid residue,  
preferably not cysteine.

Xaa18 is independently any amino acid residue,  
preferably not cysteine.

Xaa19 is independently any amino acid residue,  
preferably not cysteine.

Xaa20 is independently any amino acid residue,  
preferably not cysteine.

<221> VARIANT

<222> (22)...(22)

<223> Xaa is any amino acid residue, preferably not

cysteine

<221> VARIANT

<222> (24)...(29)

<223> Xaa24 is independently any amino acid residue,  
preferably not cysteine.

Xaa25 is independently any amino acid residue,  
preferably not cysteine.

Xaa26 is independently any amino acid residue,  
preferably not cysteine.

Xaa27 is independently any amino acid residue,  
preferably not cysteine.

Xaa28 is independently any amino acid residue,  
preferably not cysteine.

Xaa29 is independently any amino acid residue,  
preferably not cysteine.

<400> 3

Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Cys	Xaa	Xaa	Xaa
1				5				10					15		
Xaa	Xaa	Xaa	Xaa	Gly	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Cys	
			20				25						30		

<210> 4

<211> 213

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate nucleotide encoding the polypeptide of  
SEQ ID NO:2

<221> variation

<222> (1)...(213)

<223> Nucleotides 12, 15, 21, 24, 27, 33, 39, 42, 45,  
48, 51, 54, 60, 63, 75, 78, 98, 99, 100, 106, 109,  
112, 115, 118, 121, 127, 130, 133, 136, 142, 145,  
163, 172, 175, 178, 181, 184, 196, and 199 are  
each independently A, T, G or C.

<400> 4

athcaytayy	tnytnntygc	nytnytnnty	ytnttytng	tnccngtncc	nggncayggn	60
ggnathatha	ayacnytnca	raartrrnnn	tgymngntnm	ngggnggnmg	ntgygcngtn	120

<210> 5  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<400> 5  
gagcacttgc cgatctgttc 20

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<220>
<223> Oligonucleotide ZC14740
<400> 6
ccaggtcatg gaggaatcat

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<220>  
<223> Oligonucleotide ZC14780  
  
<400> 7  
ggaggaatca taaacaca

<220>  
<223> Oligonucleotide ZC14776

<400> 8  
gccgatctgt tcctcctt 18

<210> 9  
<211> 438  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (220)...(420)

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tgttctgcat ggtgagagggc attggaatga tgcatacagaa aacatgtcat aatgtcatca 120  
ctgtaatatg acaagaattg cagctgtggc tggaaaccttt ataaagtgac caagcacacc 180  
ttttcatcca gtctcagcgt ggggtgaagc ctagcagct atg agg atc cat tat 234

Met Arg Ile His Tyr  
1 5

ctt ctg ttt gct ttg ctc ttc ctg ttt ttg gtg cct gtt cca ggt cat 282  
Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val Pro Val Pro Gly His  
10 15 20

gga gga atc ata aac aca tta cag aaa tat tat tgc aga gtc aga ggc 330  
Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Gly  
25 30 35

ggc cgg tgt gct gtg ctc agc tgc ctt cca aag gag gaa cag atc ggc 378  
Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Gly  
40 45 50

aag tgc tcg acg cgt ggc cga aaa tgc tgc cga aga aag aaa 420  
Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg Arg Lys Lys  
55 60 65

taaaaaccct gaaacatg 438

<210> 10  
<211> 67  
<212> PRT  
<213> Homo sapiens

gccccccccc

<400> 10

Met Arg Ile His Tyr Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val  
 1 5 10 15  
 Pro Val Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
 20 25 30  
 Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
 35 40 45  
 Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
 50 55 60  
 Arg Lys Lys  
 65

<210> 11

<211> 219

<212> DNA

<213> Artificial Sequence

<220>

<223> Degenerate nucleotide sequence encoding the  
 polypeptide of SEQ ID NO:10

<221> variation

<222> (1)...(219)

<223> Nucleotides 6, 18, 21, 27, 30, 33, 39, 45, 48, 51,  
 54, 57, 60, 66, 69, 81, 84, 94, 95, 96, 102, 105,  
 108, 111, 114, 117, 123, 126, 129, 132, 138, 141,  
 159, 168, 171, 174, 177, 180, 192, 195, and 210  
 are each independently A, T, C, or G.

<400> 11

atgmgcnathc aytayytnyt nttygcnytn ytnnttytnt tyytngtncc ngtnccnggn	60
cayggnggna thathaayac nytnccaraar trrrnntgym gngtnmgngg nggngmntgy	120
gcngtnytnw sntggytncc naargargar carathggna artgywsnac nmngngnmgn	180
aartgytgym gnmgnaaraa rtrraarccn trraayatg	219

<210> 12

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide ZC15591

<400> 12  
tgccgatctg ttcctccttt g 21

<210> 13  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide ZC15589

<400> 13  
gaacaggcac caaaaacagg aagag 25

<210> 14  
<211> 37  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 14  
Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
1 5 10 15  
Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
20 25 30  
Lys Cys Cys Arg Arg  
35

<210> 15  
<211> 29  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (26)...(26)  
<223> Xaa is Leu, Ile, Val, Phe or Met.

10091136 "4349494"



&lt;400&gt; 15

Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly
1				5					10					15	
Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys			
			20					25							

&lt;210&gt; 16

&lt;211&gt; 30

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (26)...(26)

&lt;223&gt; Xaa is Leu, Ile, Val, Phe or Met.

&lt;400&gt; 16

Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly
1				5					10					15	
Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys		
			20					25					30		

&lt;210&gt; 17

&lt;211&gt; 27

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (26)...(26)

&lt;223&gt; Xaa is Leu, Ile, Val, Phe or Met.

&lt;400&gt; 17

Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly
1				5					10					15	
Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg					
			20					25							

<210> 18  
 <211> 38  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 18  
 Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
 1 5 10 15  
 Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
 20 25 30  
 Lys Cys Cys Arg Arg Lys  
 35

<210> 19  
 <211> 39  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 19  
 Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
 1 5 10 15  
 Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
 20 25 30  
 Lys Cys Cys Arg Arg Lys Lys  
 35

<210> 20  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin Polypeptide

<400> 20  
 Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
 1 5 10 15

30041360

Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
                   20                  25                  30  
 Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
                   35                  40

<210> 21  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 21  
 Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
   1                  5                  10                  15  
 Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
                   20                  25                  30  
 Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys  
                   35                  40

<210> 22  
 <211> 42  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 22  
 Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
   1                  5                  10                  15  
 Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
                   20                  25                  30  
 Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg  
                   35                  40

<210> 23  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>

100116"90001

<210> 26



Arg Tyr Arg Lys Cys Cys Arg Arg  
 20 25 30  
 35 40

<210> 29  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 29  
 Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
 1 5 10 15  
 Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
 20 25 30  
 Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
 35 40

<210> 30  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 30  
 Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
 1 5 10 15  
 Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
 20 25 30  
 Tyr Arg Lys Cys Cys Arg Arg Lys  
 35 40

<210> 31  
 <211> 39  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

&lt;400&gt; 31

Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
 1 5 10 15  
 Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
 20 25 30  
 Tyr Arg Lys Cys Cys Arg Arg  
 35

&lt;210&gt; 32

&lt;211&gt; 40

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;400&gt; 32

Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
 1 5 10 15  
 Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr  
 20 25 30  
 Arg Lys Cys Cys Arg Arg Lys Lys  
 35 40

&lt;210&gt; 33

&lt;211&gt; 39

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;400&gt; 33

Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
 1 5 10 15  
 Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr  
 20 25 30  
 Arg Lys Cys Cys Arg Arg Lys  
 35

&lt;210&gt; 34

&lt;211&gt; 38

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<400> 34

Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
 1 5 10 15  
 Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr  
 20 25 30  
 Arg Lys Cys Cys Arg Arg  
 35

<210> 35

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (45)...(45)

<223> Xaa is leu, ile, val, phe, or met

<400> 35

Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg  
 1 5 10 15  
 Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
 20 25 30  
 Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40 45  
 Lys

<210> 36

<211> 48

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

1009116-030609



<223> Xaa is leu, ile, val, phe, or met

Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg  
1 5 10 15  
Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
20 25 30  
Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
35 40 45

### <213> Artificial Sequence

<223> Defensin polypeptide

<223> Xaa is leu, ile, phe, val, or met

Gly His Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val  
1 5 10 15  
Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys  
20 25 30  
Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
35 40 45

### <213> Artificial Sequence

<223> Defensin polypeptide

 $\langle 222 \rangle \quad (44) \dots (44)$

<223> Xaa is leu, ile, val, phe, or met.

<400> 38

Gly	His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val
1				5				10					15		
Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys
			20				25					30			
Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	
		35					40					45			

<210> 39

<211> 47

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (43)...(43)

<223> Xaa is leu, ile, val, phe, or met

<400> 39

His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg
1			5				10					15			
Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile
			20				25				30				
Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys	
		35					40				45				

<210> 40

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (43)...(43)

<223> Xaa is leu, ile, phe, val, or met

<400> 40

His Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg  
 1 5 10 15  
 Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile  
 20 25 30  
 Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40 45

<210> 41

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (42)...(42)

<223> Xaa is leu, ile, phe, val, or met

<400> 41

Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly  
 1 5 10 15  
 Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly  
 20 25 30  
 Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 35 40 45

<210> 42

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (42)...(42)

<223> Xaa is leu, ile, phe, val, or met

<400> 42

Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly  
 1 5 10 15  
 Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly

20 25 30  
 Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40 45

<210> 43  
 <211> 45  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (41)...(41)  
 <223> Xaa is leu, ile, val, phe, or met

<400> 43  
 Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly  
 1 5 10 15  
 Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys  
 20 25 30  
 Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 35 40 45

<210> 44  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (41)...(41)  
 <223> Xaa is leu, ile, phe, val, or met

<400> 44  
 Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly  
 1 5 10 15  
 Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys  
 20 25 30  
 Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40

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<210> 45  
 <211> 44  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (40)...(40)  
 <223> Xaa is leu, ile, phe, val, met.

<400> 45  
 Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg  
 1 5 10 15  
 Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met  
 20 25 30  
 Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 35 40

<210> 46  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (40)...(40)  
 <223> Xaa is leu, ile, phe, val, or met

<400> 46  
 Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg  
 1 5 10 15  
 Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met  
 20 25 30  
 Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40

<210> 47  
 <211> 43

20250401 09:00:00

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (39)...(39)

<223> Xaa is leu, ile, val, phe, or met.

<400> 47

Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys
1				5				10						15	
Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser
			20					25					30		
Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys					
		35					40								

<210> 48

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (39)...(39)

<223> Xaa is leu, ile, phe, val, or met

<400> 48

Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys
1				5				10						15	
Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser
			20					25					30		
Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys						
		35					40								

<210> 49

<211> 42

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (38)...(38)

&lt;223&gt; Xaa is leu, ile, phe, val, or met

&lt;400&gt; 49

Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala
1				5					10					15	
Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr
			20					25					30		
Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys						
			35					40							

&lt;210&gt; 50

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (38)...(38)

&lt;223&gt; Xaa is ile, leu, phe, val, or met

&lt;400&gt; 50

Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala
1				5					10					15	
Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr
			20					25					30		
Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys							
			35					40							

&lt;210&gt; 51

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

<222> (37)...(37)

<400> 51

<210> 52

<212> PRT

 $\langle 220 \rangle$ 

<221> VARIANT

<222> (37)...(37)

<400> 52

<210> 53

<211> 40

<212> PRT

<220>

<221> VARIANT

<222> (36)...(36)

<223> Xaa is ile, leu, val, phe, or met



&lt;400&gt; 53

Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu
1				5					10					15	
Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly
			20					25					30		
Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys								
		35					40								

&lt;210&gt; 54

&lt;211&gt; 39

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (36)...(36)

&lt;223&gt; Xaa is leu, ile, met, phe, or val

&lt;400&gt; 54

Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu
1				5					10					15	
Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly
			20					25					30		
Arg	Lys	Cys	Xaa	Arg	Arg	Lys									
		35													

&lt;210&gt; 55

&lt;211&gt; 39

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (35)...(35)

&lt;223&gt; Xaa is leu, val, ile, met, or phe

&lt;400&gt; 55

Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1                      5                      10                      15  
 Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg  
                     20                      25                      30  
 Lys Cys Xaa Arg Arg Lys Lys  
                     35

<210> 56  
 <211> 38  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (35)...(35)  
 <223> Xaa is ile, leu, val, phe, or met

<400> 56  
 Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser  
 1                      5                      10                      15  
 Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg  
                     20                      25                      30  
 Lys Cys Xaa Arg Arg Lys  
                     35

<210> 57  
 <211> 38  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (34)...(34)  
 <223> Xaa is ile, leu, val, phe, or met

<400> 57  
 Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys  
 1                      5                      10                      15  
 Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys  
                     20                      25                      30

Cys Xaa Arg Arg Lys Lys  
35

<210> 58  
<211> 37  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (34)...(34)  
<223> Xaa is ile, leu, val, phe, or met

<400> 58  
Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys  
1 5 10 15  
Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys  
20 25 30  
Cys Xaa Arg Arg Lys  
35

<210> 59  
<211> 37  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (33)...(33)  
<223> Xaa is ile, leu, met, phe, or val

<400> 59  
Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu  
1 5 10 15  
Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys  
20 25 30  
Xaa Arg Arg Arg Lys Lys  
35

<210> 60  
 <211> 36  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (33)...(33)  
 <223> Xaa is ile, leu, val, phe, or met

<400> 60  
 Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu  
 1                      5                      10                      15  
 Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys  
                     20                      25                      30  
 Xaa Arg Arg Lys  
                     35

<210> 61  
 <211> 36  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (32)...(32)  
 <223> Xaa is leu, ile, val, met, or phe

<400> 61  
 Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro  
 1                      5                      10                      15  
 Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa  
                     20                      25                      30  
 Arg Arg Lys Lys  
                     35

<210> 62  
 <211> 35  
 <212> PRT

seq "defensin"

<223> Defensin polypeptide

<223> Xaa is phe, val, ile, leu, or met

Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro  
1 5 10 15  
Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa  
20 25 30  
Arg Arg Lys  
35

<213> Artificial Sequence

<223> Defensin polypeptide

<223> Xaa is ile, leu, phe, val, or met

Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
1 5 10 15  
Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg  
20 25 30  
Arg Lys Lys  
35

<213> Artificial Sequence

<220>

<223> Xaa is ile, leu, val, phe, or met

Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
1 5 10 15  
Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg  
20 25 30  
Arg Lys

<213> Artificial Sequence

<223> Defensin polypeptide

<223> Xaa is ile, leu, val, phe, or met

Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu  
1 5 10 15  
Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg  
20 25 30  
Lys Lys

### <213> Artificial Sequence

<223> Defensin polypeptide

<221> VARIANT

<223> Xaa is leu, ile, val, phe, or met

Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu
1				5					10					15	
Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg
			20					25					30		

Lys

<211> 33

<212> PRT

### <213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> Defensin polypeptide

<221> VARIANT

<222> (29)...(29)

<223> Xaa is ile, leu, val, phe, or met

Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
1 5 10 15  
Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
20 25 30

Lys

<211> 32

<212> PRT

### <213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (29)...(29)

<223> Xaa is leu, ile, phe, val, or met

<210> 71



<211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (27)...(27)  
 <223> Xaa is ile. leu. met. phe. or val

<400> 71

Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile
1				5				10					15		
Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys	
			20					25					30		

<210> 72  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (27)...(27)  
 <223> Xaa is leu, ile, phe, val, or met

<400> 72

Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile
1				5				10					15		
Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys		
			20					25					30		